GREEN IT IN UTAH

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Introduction

Utah Governor Jon Huntsman, Jr. has declared clean energy a top priority in Utah, as a means to improve efficiency, reduce energy demand and enhance the environment while saving money and creating jobs. He signed a bill into law in March 2006 creating an energy advisor and establishing an energy policy for Utah that includes energy efficiency and renewable energy. In April 2006, Huntsman released his comprehensive energy efficiency plan "Advancing Energy Efficiency in the State" and in May 2006 issued an executive order setting a goal to increase statewide energy efficiency 20% by 2015. One of his top priorities is for the Utah state government to lead by example and demonstrate the energy, environment and economic benefits of clean energy to its citizens, businesses and industries. Utah will expand upon their successes and deliver the state to the next level of innovation and economic growth. Through this partnership, Utah believes the technical support, information and network of other state partners they gain access to will be key to their success in positioning themselves as a national leader on clean energy.[1] Additional policy options were introduced in October 2007.[2]

Utah is a member of The Climate Registry. The Blue Ribbon Advisory Council on Climate Change (BRAC) was organized by Governor Jon M. Huntsman, Jr. on August 25, 2006, to provide a forum where government, industry, environment, and community representatives could identify proactive measures that Utah might take to mitigate the impacts of greenhouse gases (GHG).

Governor Huntsman provided the following charge to the Council:

- Consider science, economics, and policy around climate change in a forum where we as a State – industry, environment, community – could have productive dialogue;
- Understand and recognize what we are trying to leave for the next generation; and
- Bring back information and policy recommendations for review and consideration.

Neither the BRAC nor the initial energy plan addressed the issue of green information technology in state government. However, state agencies, in conjunction with the Department of Technology Services have implemented various initiatives that reduce the impact of computer operations on the environment.

In January 2008, DTS reported the following as part of the 2008 Energy Efficiency Initiative Report:

"The Department of Technology Services (DTS), in cooperation with the DPGS and Western States Contracting Alliance (WSCA) has implemented a desktop and notebook computer standardization program. Standards embraced by DTS will require the purchase of computer equipment that meets the environmental criteria, including Energy Star compliance, established by the Electronic Product Environmental Assessment Tool (EPEAT).38 Specifically, purchases will be limited to products that are rated EPEAT silver.39 DTS estimates[3] that that the state will save approximately 59,178,160 kWh annually by purchasing desktops, LCD monitors and laptops that meet EPEAT silver level requirements."

As recommended by the Green Grid Technology Roadmap[4], DTS should,

1. Identify coverage gaps in existing energy efficiency standards,
2. Develop a data center power efficiency model,
3. Map requirements for collecting power consumption data,
4. Establish and efficiency baseline,
5. Explore data center operational and performance best practices,
6. Perform an analysis of cooling options.

Green IT Initiatives

- Increase the number of online services that reduce the requirement for citizens to drive to a government office.
- Coordinate the reuse and disposal of surplus computers in a way that minimizes the environmental impact
- Leverage virtualization technologies to reduce energy requirements.
- Replace servers and PC's with energy efficient equipment.
- Optimize the use of computer equipment through the use of shared systems.
- Perform a power optimization study of major data centers.
- Install monitoring and control systems in the data center

- Implemented blade centers and virtualization with power consumption as a factor in the decision process.

- E-government measures that significantly reduce the volume of paper and printing.

- Consolidation of IT staff throughout rural Utah to reduce support travel miles

- Power distribution systems improved in both major data centers

- The State's alternate data center is shared with universities, school districts, and local government to significantly reduce cost as well as overall power and cooling requirements.

- Increased use of electronic document management with workflow

- Replacing copiers and printers with power-efficient, multi-functional devices.

- Defaulting print to duplex

- Implementing remote desktop management capabilities

- Effective use of teleworking and other energy efficient work patterns

Data Center Recommendation

Many of the operational efficiencies mentioned most often in green IT initiatives are associated with efficient management of data centers. In particular, best practices in data center management recommend densification of server farms based on the following philosophies:

- If you must own, share.
- If you must operate your own, consolidate, modularize, virtualize, and rethink floor space.
- If you go after your servers, go after storage too.

This represents one of the biggest opportunities for the State of Utah. In a relatively small pilot, the state has used a virtualization strategy to consolidate 45 servers down to three. The state should develop a plan to reduce the number of server farms / data center locations while also implementing a more global virtualization strategy. If done correctly, individual systems and applications will actually have access to more total resources.

The same philosophy can be applied to the management of storage resources. This would involve the creation at the statewide level of a cloud-type environment similar to that offered to users by Amazon and Google that can be effectively monitored and supported.

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[1] Utah Policy to Advance Energy Efficiency in the State, http://www.utah.gov/energy/governors_priorities/utah_policy_to_advance_energy_efficiency_in_the_state.html

[2] Utah Energy Efficiency Strategy: Policy Options, http://www.utah.gov/energy/docs/UT_EE_Strategy_Final_Report_10-01-07.pdf

[3] 2008 Energy Efficiency Initiative Report, http://www.das.utah.gov/energy/2008UtahEEIReport.pdf, pg. 39.

[4] "Simply Green", Center for Digital Government, June 2008, p. 14.